This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-28 (cancelled).

Claim 29. (previously presented) Materials for in vivo repair of cartilage, comprising:

a cartilage membrane for application over a cartilage free cavity comprising at least one surface part carrying a composition comprising at least one stimulation molecule which induces a signal transduction in chondroblasts/chondrocytes; and

a suspension capable of filling the cartilage free cavity.

Claim 30. (previously presented) Materials according to claim 67, wherein the proteoglycan is selected from the group consisting of aggrecans, decorin, fibromodulin and biglycan, and the non-collageneous protein is selected from the group consisting of cryoprecipitate, fibronectin, vitronectin, fibrinogen, fibrillin, kistrin, echistatin, von Willebrand factor, tenascin and anchorin CII.

Claim 31. (previously presented) Materials according to claim 29, wherein the cartilage membrane is a non-immunogenic, non-toxic, biodegradable membrane.

Claim 32. (previously presented) Materials according to claim 29, wherein the membrane material is porous or substantially porous.

Claims 33-39. (cancelled)

Claim 40. (previously presented) Materials according to claim 29, wherein the stimulation molecule is a natural or synthetic protein or peptide or a fusion or mixture thereof.

Claim 41. (previously presented) Materials according to claim 40, wherein the stimulation molecule is selected from the group consisting of collagen type II and fibronectin.

Claim 42. (previously presented) A cartilage membrane according to claim 41, wherein the stimulation molecule is attached to a support.

Claims 43-51 (cancelled).

Claim 52. (previously presented) A kit for cartilage repair comprising:

a cartilage membrane for application over a cartilage free cavity comprising at least one surface part carrying a composition comprising at least one stimulation molecule which induces a signal transduction in chondroblasts/chondrocytes; and

a suspension capable of filling the cartilage free cavity.

Claims 53-57 (cancelled).

Claim 58. (previously presented) The kit of claim 52, wherein the suspension capable of filling the cartilage free cavity is a chondroblast/chondrocyte suspension.

Claim 59. (previously presented) The kit of claim 52, wherein the stimulation molecule is selected from the group consisting of collagen proteins, proteoglycans and non-collageneous proteins.

Claim 60. (previously presented) The kit of claim 52, wherein the kit is also for bone repair and further comprises:

an interface membrane for application over a bone free cavity, the interface membrane comprising a first surface part facing the bone free cavity and carrying a composition comprising at least one stimulation molecule which is capable of inducing a signal transduction in osteoblast/osteocyte, and a second surface part carrying a composition comprising at least one stimulation molecule which induces a signal transduction in chondroblasts/chondrocytes; and

a suspension capable of filling the bone free cavity.

Claim 61. (previously presented) The kit of claim 60, wherein the suspension capable of filling the bone free cavity is an osteoblast/osteocyte suspension.

Claim 62. (previously presented) The kit of claim 52, wherein the cartilage membrane is non-immunogenic, non-toxic, and biodegradable.

Claim 63. (previously presented) The kit of claim 52, wherein the cartilage membrane is porous or substantially porous.

Claim 64. (previously presented) The kit of claim 52, wherein the cartilage membrane is natural or synthetic collagen type I membrane of a part thereof.

Claim 65. (previously presented) Materials of claim 29, wherein the stimulation molecule comprises at least one RGD motif.

Claim 66. (previously presented) Materials of claim 65, wherein the stimulation molecule is a natural or synthetic protein or peptide or a fusion or mixture thereof.

Claim 67. (previously presented) Materials of claim 65, wherein the stimulation molecule is selected from the group consisting of collagen proteins, proteoglycans, and non-collageneous proteins.

Claim 68. (previously presented) Materials of claim 65, wherein the stimulation molecule is selected from collagen type II and fibronectin.

Claim 69. (new) Materials of claim 29 whereby when the cartilage membrane is applied over the cartilage free cavity, the at least one surface part is disposed facing the cartilage free cavity and the suspension is disposed between the cartilage membrane and the cartilage.